Institute of Education

UCL

Designing education and training interventions using theory and evidence

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EPPI CENTRE

Introductions

- Who are you and who do you teach?

What do you want to achieve today from this workshop ?

- Think also about how you might describe what you gained from participating in this work shop
- Write on a post it

RESEARCH USE ECOSYSTEM

THE CONTEXT OF RESEARCH USE

ISSUES /ACTORS/ PERSPECTIVES/ QUESTIONS

RESEARCH USE

BY DECISION MAKERS

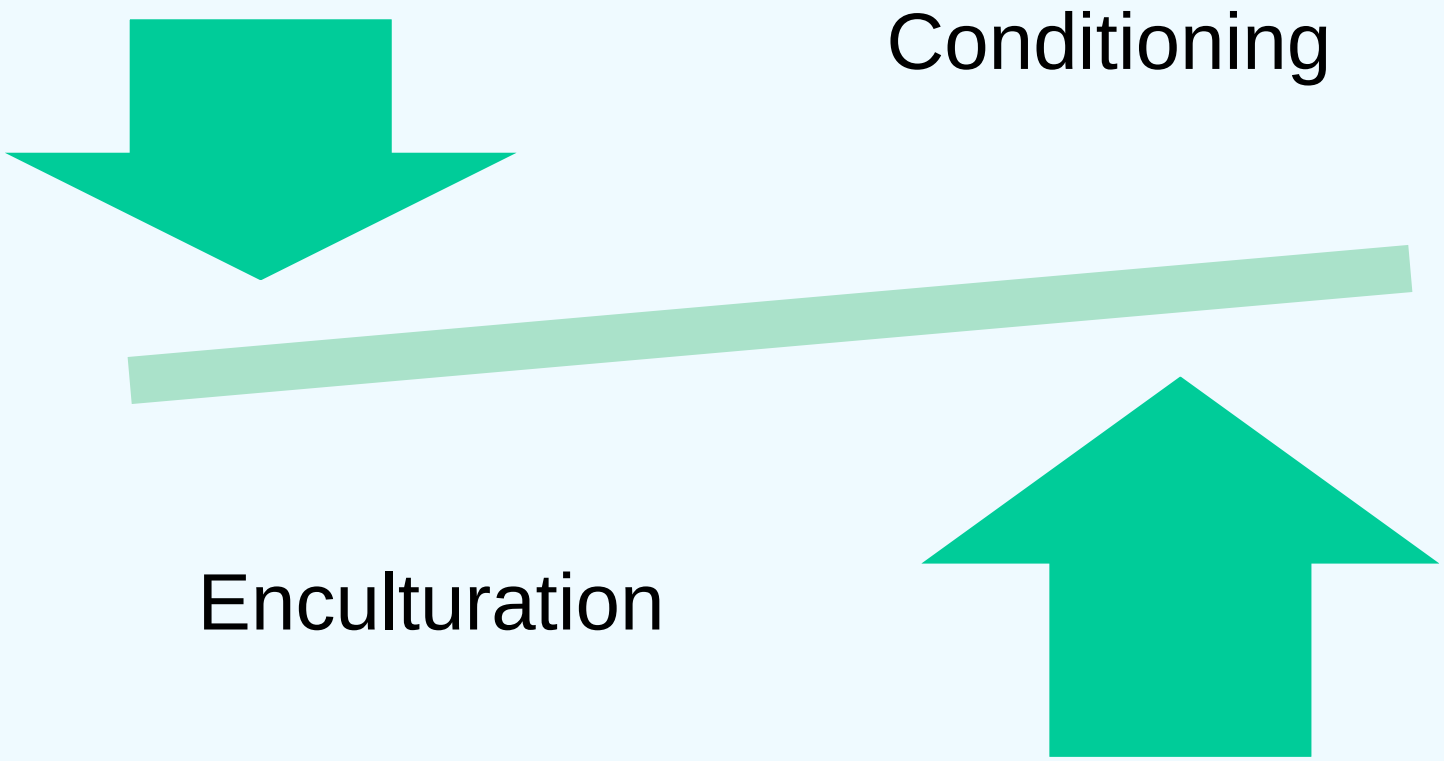
POLICY, PRACTICE, AND PERSONAL DECISIONS

Types of Use:

- Instrumental
- Enlightenment
- Tactical / Policy led evidence / Politically motivated reasoning (PMR)
- Forced / Required

Adapted from the EIPEE report (Gough et al 2010)

Different ways of thinking about medical education

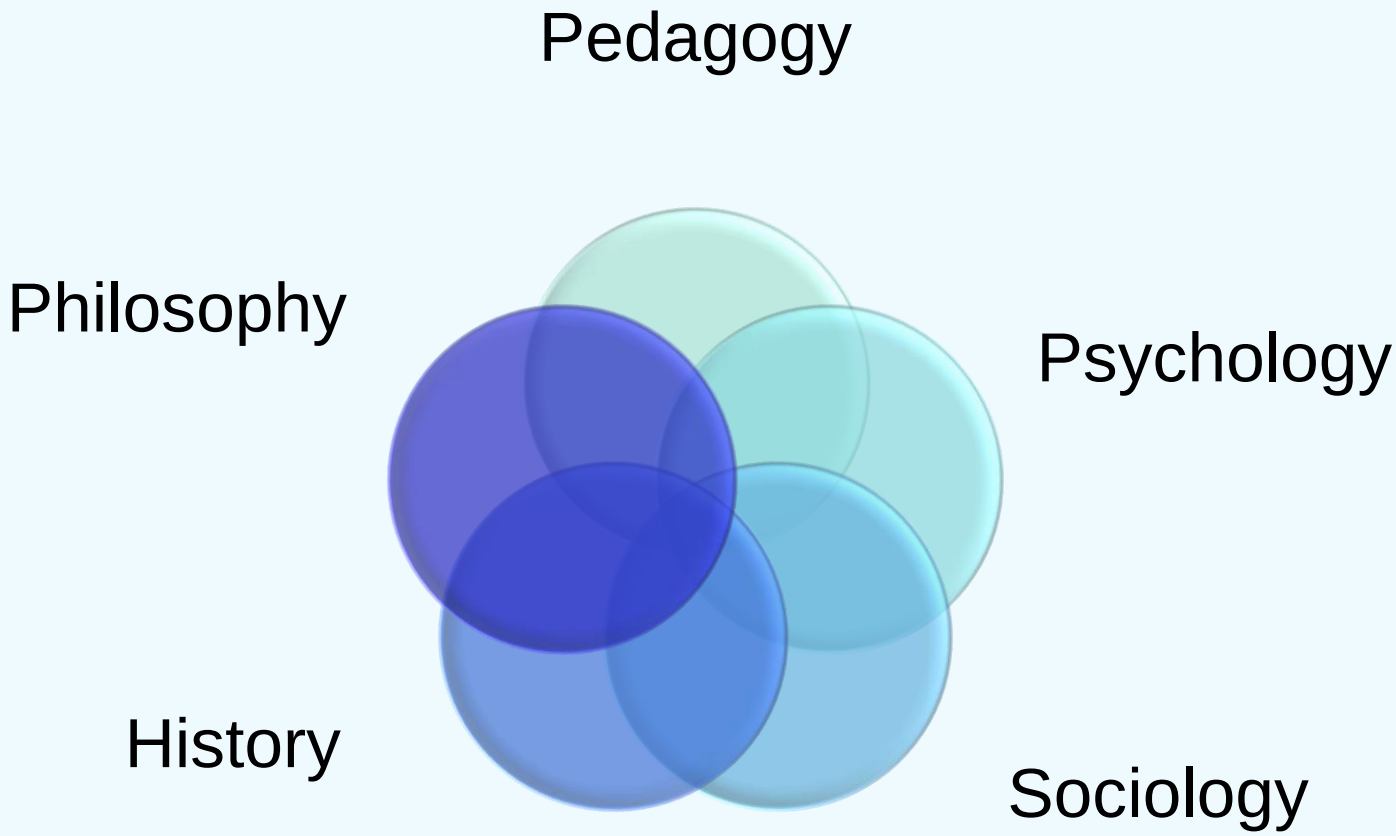


What is the purpose of medical education?

- To develop and grow a person to their full intellectual, practical and emotional potential?
- To inculcate specific societal/professional values?
- To competently perform specific roles and tasks?
- To develop ability to explore new ideas and to think independently?

Medical education as process

Disciplines contributing ‘theory’ to medical education



‘Theories’ relevant to medical education

Lifelong learning

Learning theories

Professionalism

Management

Performance

Activity: Medical Education goals, methods, challenges ?

- Divide into three groups
- Each group considers each of the above questions one at a time at the ‘theme table’
- Move on to the next theme table and add your thoughts to the previous group
  - Round 1. 15 Mins
  - Round 2. 10 Mins
  - Round 3. 5 Mins
- Sharing and Discussion

Competency, the dominant discourse

- Competence is socially constructed
- We as society/ profession/ community decide what it is/means
- We do this through speech, text, behaviour, rules, institutional and governance structures, symbols.
- Together these = Discourses which we can analyse using Discourse Analysis

Dominant discourses of competence

- Knowledge Discourse
- Performance Discourse
- Psychometric Discourse
- Reflection Discourse
- Production Discourse

Fixed

Hodges B (2012) The shifting discourses of competence in Hodges BD & Lingard L (eds) The question of competence: Reconsidering medical Education for the 21st century. Ithaca. Cornell University Press. pp14-41

Knowledge Discourse

- Competence is knowing facts about basic science, pharmacology, aetiology, therapeutics etc…
- knowing facts,
- explain what and how,
- reading texts,
- taking tests

Performance Discourse

- **Competence is performing skillfully**

–practical skills performance,

–technique, procedures, attitudes

–simulation

–workplace based assessments

Psychometric Discourse

- **Competence is performing to, in the standard or norms (way) for your professional peers**
  - standards or norms
  - consistency or lack of variance
  - validity
  - reliability
  - anonymity

Reflecting Discourse

- **Competence is knowing your capability, learning from experience, exercising good judgment**
  - tacit knowledge
  - self assessment and regulation
  - introspection and self-improvement
  - mentors
  - portfolios

Production Discourse

- **Competence is providing quality care and good client outcomes**
  - Managing care
  - Outcomes
  - Quality of Care
  - Audit
  - Cost
  - Efficiency

Common metaphors for learning

'Acquisition' and 'transfer'

- Related to the focus on 'propositional knowledge' within education – ie facts
- Implies we can accumulate knowledge and store it away in our minds to be produced (ie transferred) to the external world when required (eg tests)
- Mind as container
- What is learned is a thing that can be moved from place to place – not linked to the specific learner or the specific context
- Generic skills – learners can 'transfer' them from one context to another (see learning outcomes in healthcare curricula)
- Competencies – need to accumulate them until competent
- Focus on the individual learner

Common metaphors - Critiques

- Evidence from neuroscience suggests that we do not record information like it might be recorded in the physical world (ie books, filing system etc)
- Equates knowing lots of facts with learning (and intelligence?)
- Expertise is not represented (ie knowing how and when to apply what knowledge to complex situations)
- Transfer implies that what has been transferred is no longer held in the original place, which would be unhelpful as a learning outcome

Issues with using metaphors

- They challenge our ideas about how we express the ‘truth’ of our realities, particularly within a scientific and research context.
- Blind acceptance of the metaphor can hide degrading realities
- Metaphors can create reality.
- The power of a metaphor may be mistaken for ‘validity’.
- The metaphor relies on analogies and therefore only works in application to the extent that the analogy holds.
- Application of metaphors can have great influence on approaches to education, with or without supporting research evidence.
- Metaphors are culturally and contextually specific.

Activity: review

- Return to your three groups and take one of the three aspects worked on in the previous exercise (Goals, Methods, Challenges)
- Consider
  - What kind of competency discourse(s) are represented and whether there is a dominant discourse
  - What metaphors are used? what do they mean? What are the possible implications of using these metaphors

Using theory to think about the design of education & Training

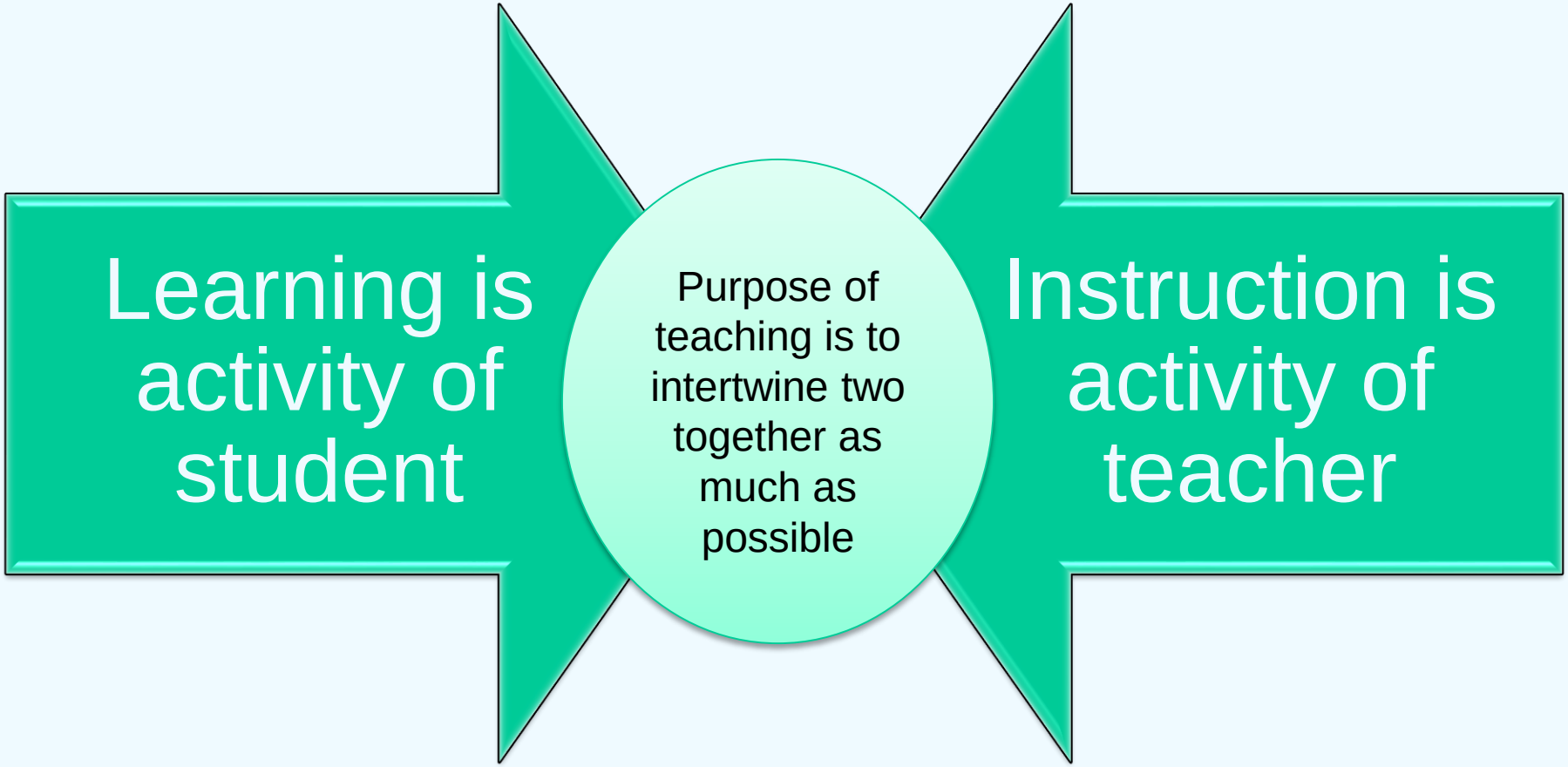
The example of Cultural Historical Activity Theory

The Cultural Historical Activity Theory (CHAT) perspective on learning in working life

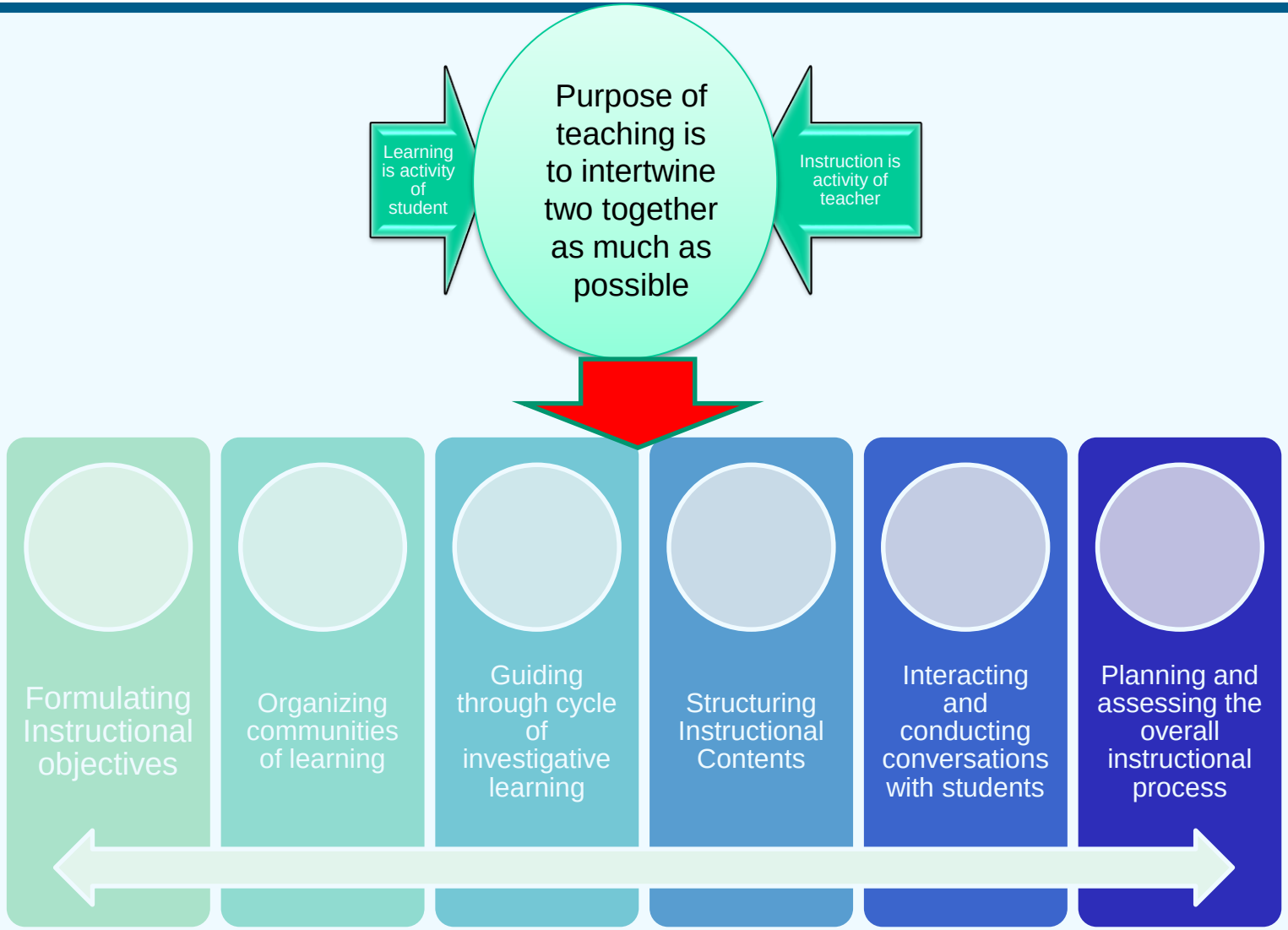
Model of Competence	Model of learning	Role of (workplace) teacher	Model of Practice (idealized)
Mastery of a trade Mastering (socio)-cognitive conflict	Active process of constructive sense making Identity formation	To set going, feed and direct active mental work of students Modelling	Communities of investigative learning that are networks that cross and transcend boundaries

Engestrom Y (1994) Training for change: New approach to instruction and learning in working life. Geneva ILO

Learning, Instruction, teaching



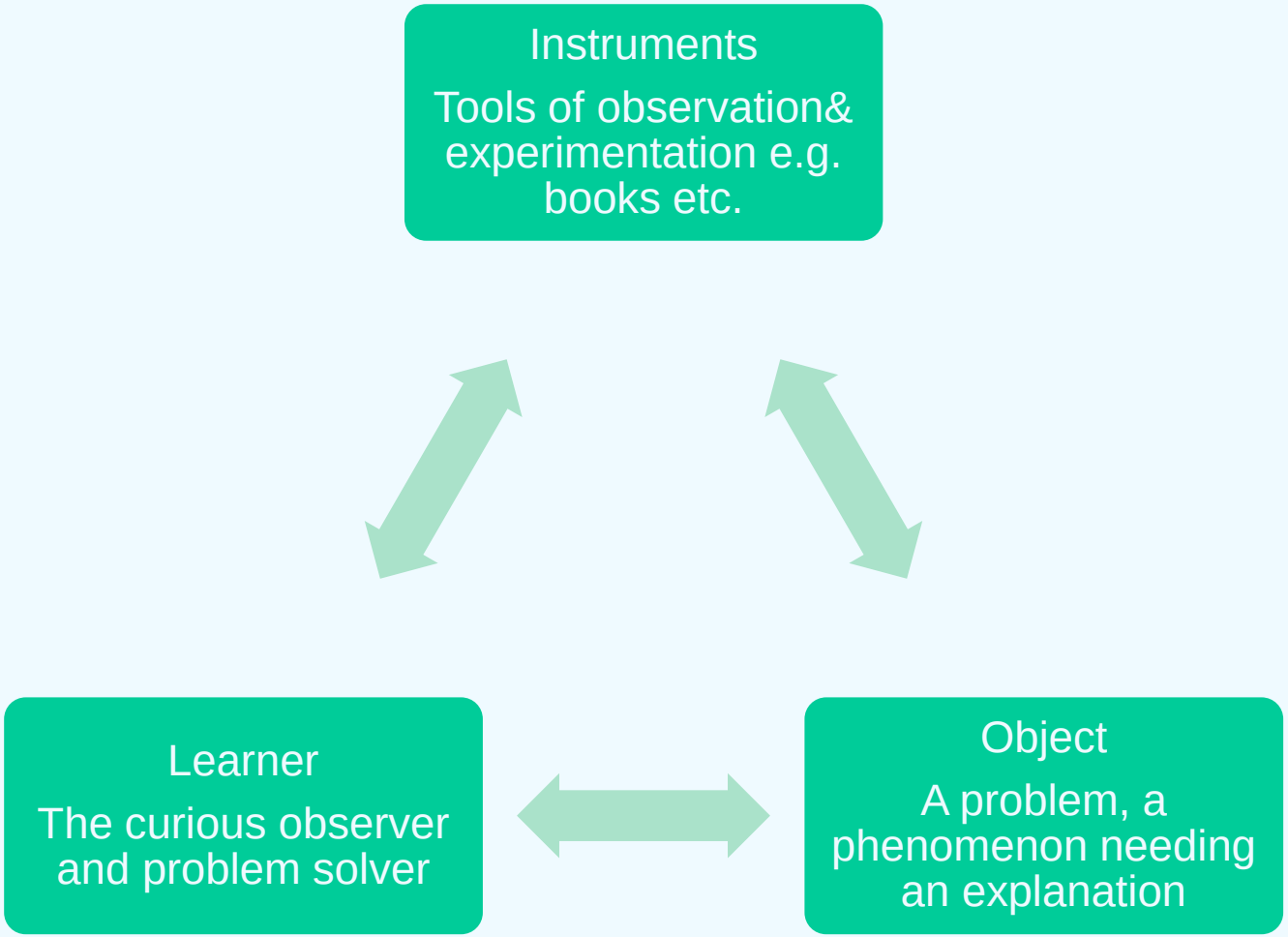
Teaching is ……


Learning is activity of student
Purpose of teaching is to intertwine two together as much as possible
Instruction is activity of teacher
Formulating Instructional objectives
Organizing communities of learning
Guiding through cycle of investigative learning
Structuring Instructional Contents
Interacting and conducting conversations with students
Planning and assessing the overall instructional process

Instructional functions

Preparing	Motivating	Orienting
Conveying and elaborating new knowledge	Systematizing	Practising
Applying	Criticizing	Evaluating and controlling

The structure of productive learning in everyday situations



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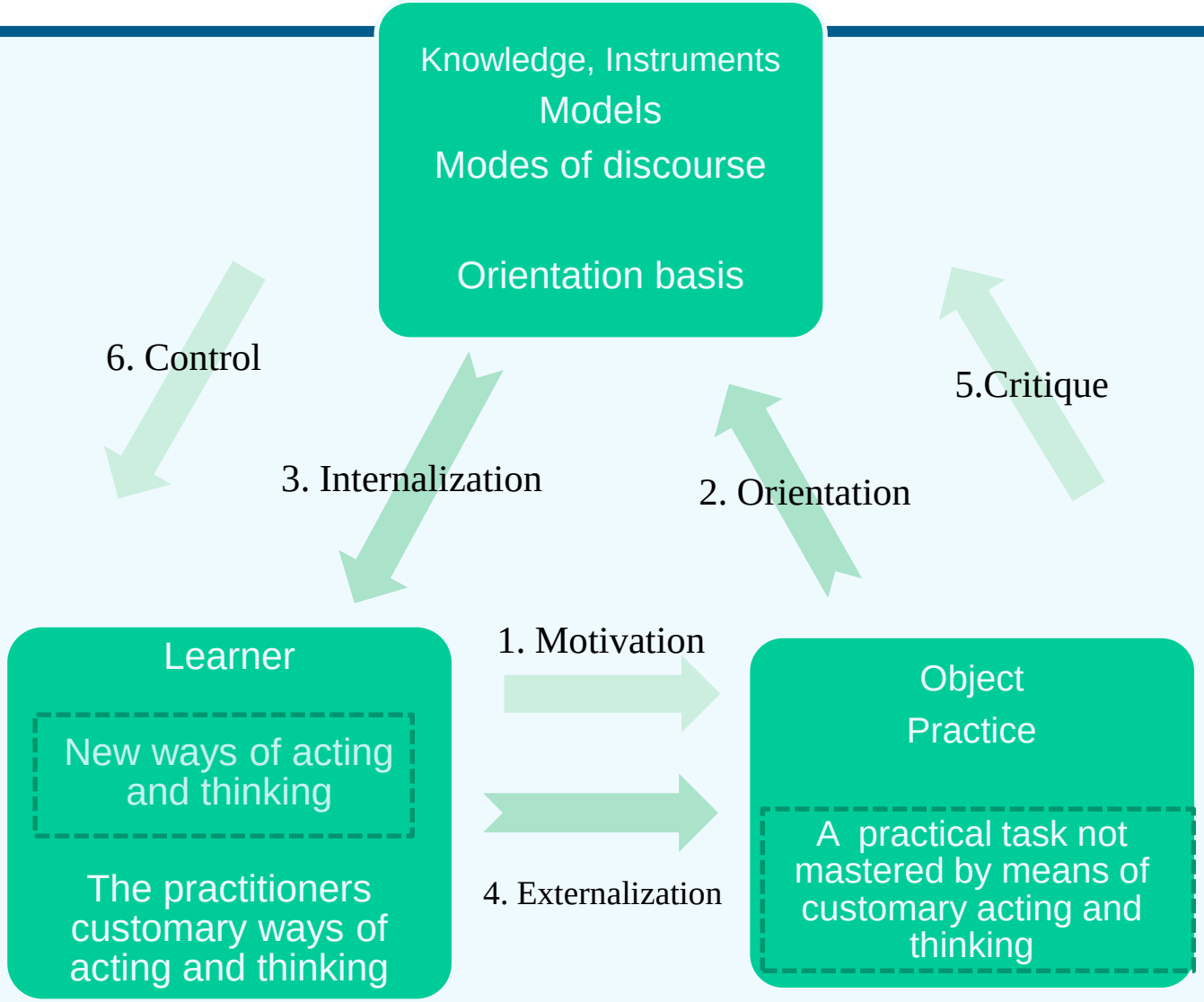
The Cycle of investigative learning



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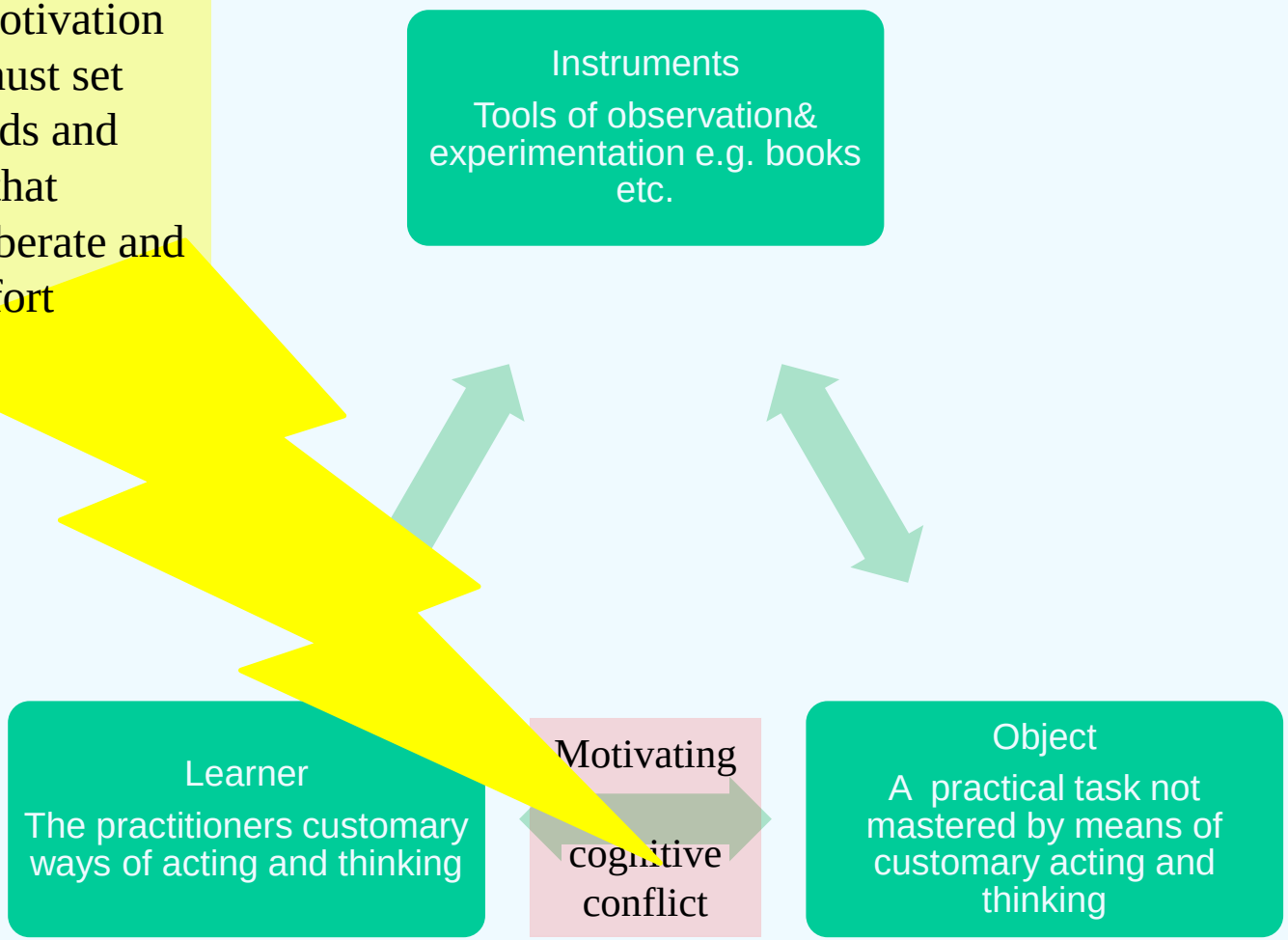
Cognitive conflict as a source of substantial learning motivation

To create motivation instructor must set high demands and challenges that require deliberate and practical effort



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Activity: Creating cognitive conflict

- In pairs

1. Think of a common example of where students experience cognitive conflict in your practice area
2. Think of an example of a motivational cognitive conflict that you could create for students in your area of practice

Orienting - the cognitive objectives of instruction

‘The purpose of the instructional objective is to direct the students efforts to the essential principles and the overall structure of the subject’

- Not behavioural objectives
- Most universal and most simple but not too abstract
- Turn the student into an explorer not a regurgitator

Cognitive objectives of instruction example

In relation to giving feedback e.g.

Understands the social, cognitive and emotional conditions for/of learning such that can give effective feedback to students in a range of different situations

Not e.g. (Behavioral)

- Recaps with student what was observed
- Asks the student what they think of their performance
- Listens to what student has to say
- Identifies specific areas of under-performance

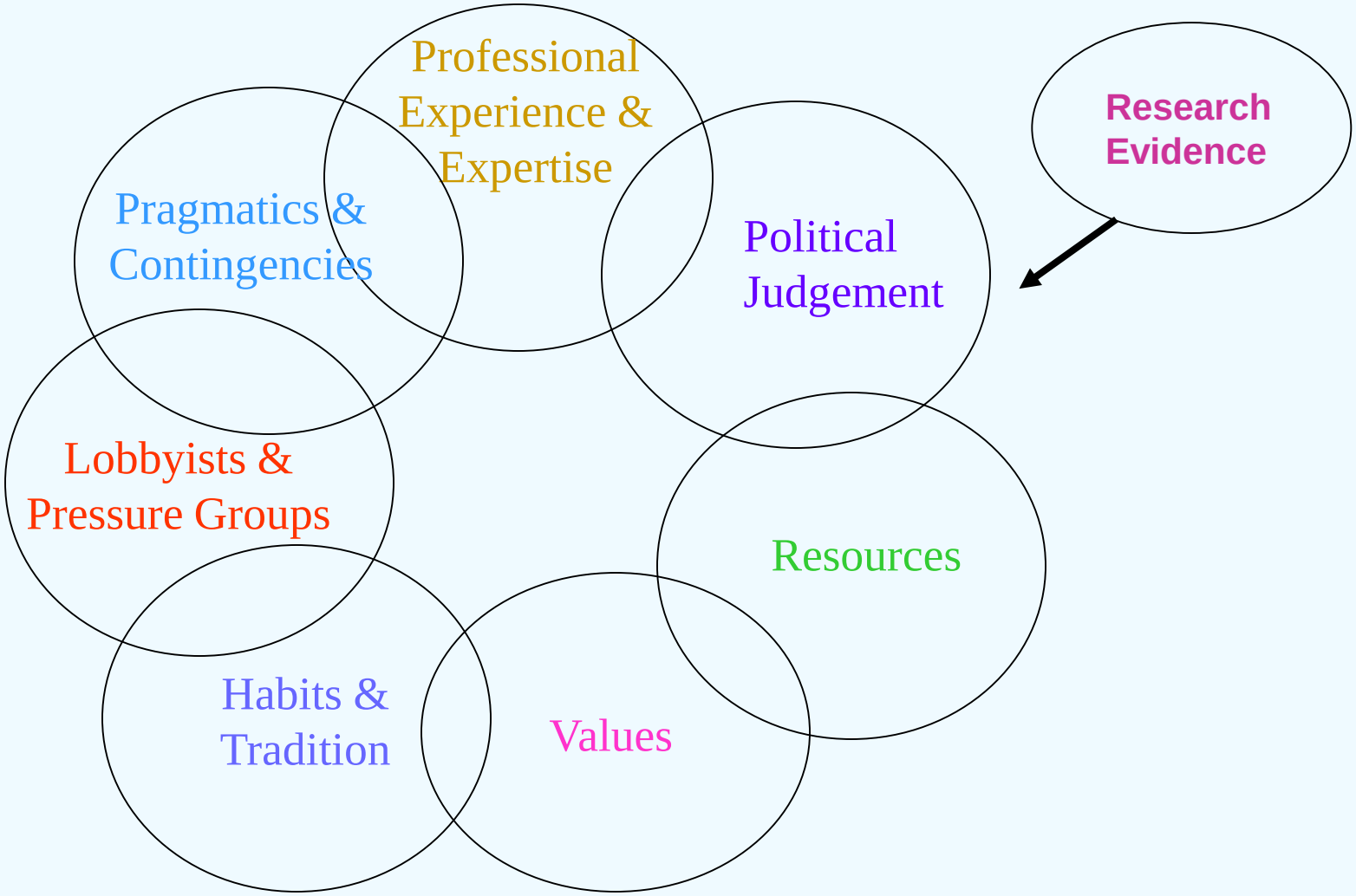
Activity: Designing cognitive objectives

- Return to the medical education goals we identified at the beginning of the session
- Which are cognitive objectives and which behavioural
- Formulate a cognitive objective for your practice area

Using research evidence to inform teaching practice

Research evidence one factor in practice policy decision making :

adapted from Davies, P. 'Is Evidence-Based Government Possible?' Campbell Collaboration, Jerry Lee Lecture, 2004



DIFFERENT FORMS OF EVIDENCE INFORMED TEACHING

1. Individual/internal research: critical enquiry / action research on one's own and colleagues work
2. Administrative data – use local and national data
3. External research: engagement by consideration of such research that might be useful for you through:
   (i) Primary research (too much!)
   (ii) Synthesis (also too much)
   (iii) Guidance – research interpreted with recommendations for application
4. Actor in external research: involvement in primary research, synthesis and guidance

5. Implementation / Impact of research evidence decided by others

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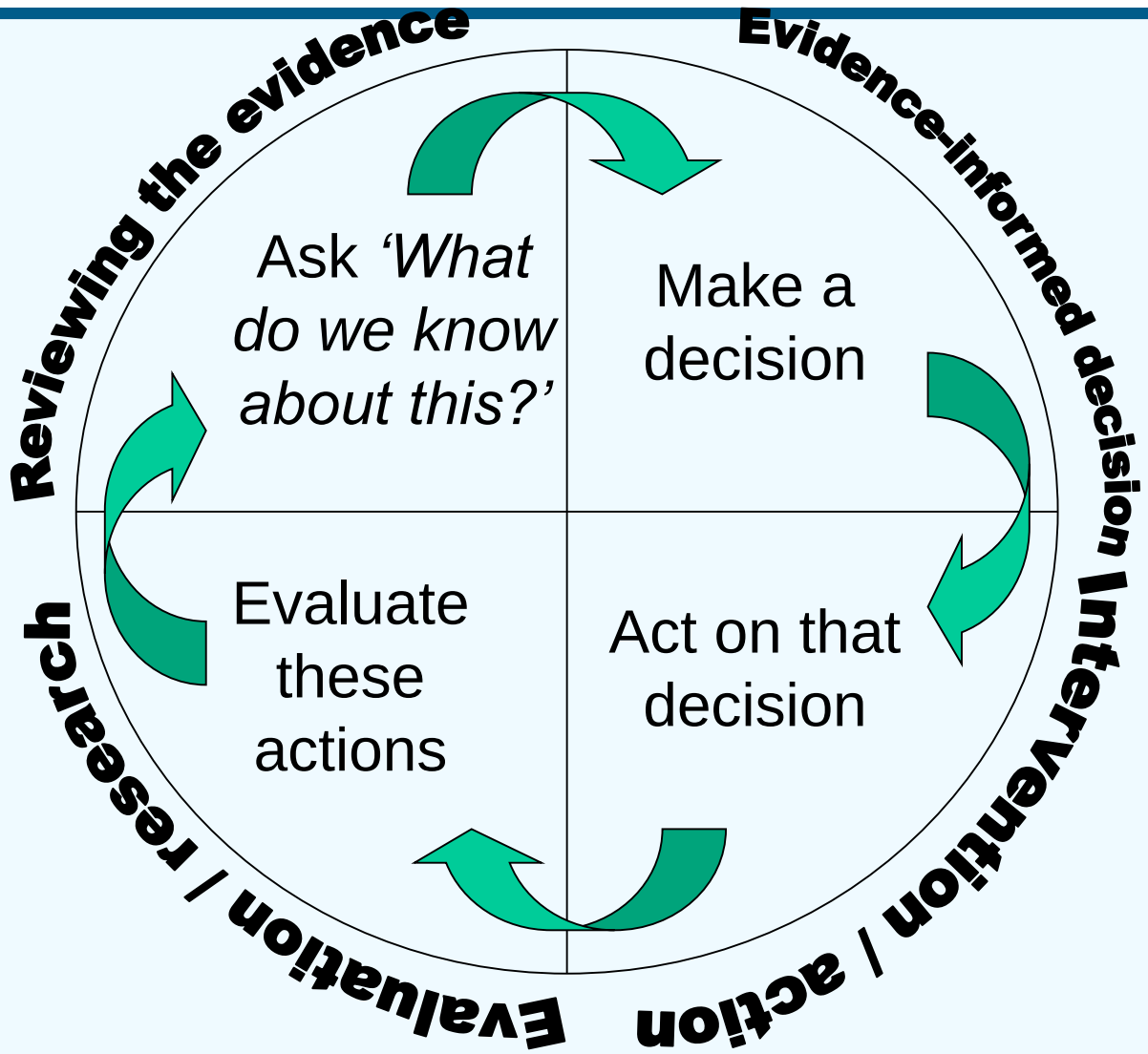
The research informed decision making cycle



The need to use research synthesis

- Primary research may not be:
  - Making justifiable evidence claims (Methodologically adequate + Contextually relevant)
  - Representative of findings of other studies
- Synthesis brings together the findings of all studies
- Systematic (review) research synthesis required (so that uses rigour and transparency and makes justifiable evidence claims)

Systematic reviews

- Similar to primary research:
  - Same expectations of rigor and transparency
  - Same range of questions and assumptions
  - Methods of review reflect methods and assumptions of primary studies
  - May include mixed methods

- A higher level of analysis:
  - Data usually from pre-existing studies rather than new primary data
  - More justifiable evidence claims than from individual studies alone

But are all systematic reviews equal?

- 7 Systematic reviews of the ‘impact of faculty development of ‘teachers’ in the health professions
- Of 317 references included in total only 38 studies appeared in two reviews, and only two studies in three of the reviews
- All reported that a quality assessment of the included studies was completed but little detail of basis of quality assessment, only 1 assessed for descriptive causality, assessment not used in synthesis
- Only 2 reported a synthesis method (Narrative???)
- All reviews claimed that (all) faculty development was effective

Newman M; Reeves S;; Fletcher S (2018 Forthcoming) Critical Analysis of Evidence About the Impacts of Faculty Development in Systematic Reviews: A Systematic Rapid Evidence Assessment. Journal of Continuing Education for the Health Professions

Using Evidence

= Changing practices and cultures?

Lessons on implementation of change

- Education
  - Involvement, ownership
- Epidemiology
  - Credible message
- Marketing
  - needs and problems of target group
- Psychology
  - Incentives and sanctions
- Sociology
  - who has influence
- Organizational
  - teamwork, leadership, routines
- Political Economy
  - Coercive measures
  - regulation & budgets

Planning implementation

- What will be done
- Why it will be done
- When it will be done
- How it will be done
- Where it will be done
- Who will do it

Activity: Consolidation and development of your ideas

1) Review your aims/goals for the workshop

2) Consider the goals/issues challenges of teaching identified earlier

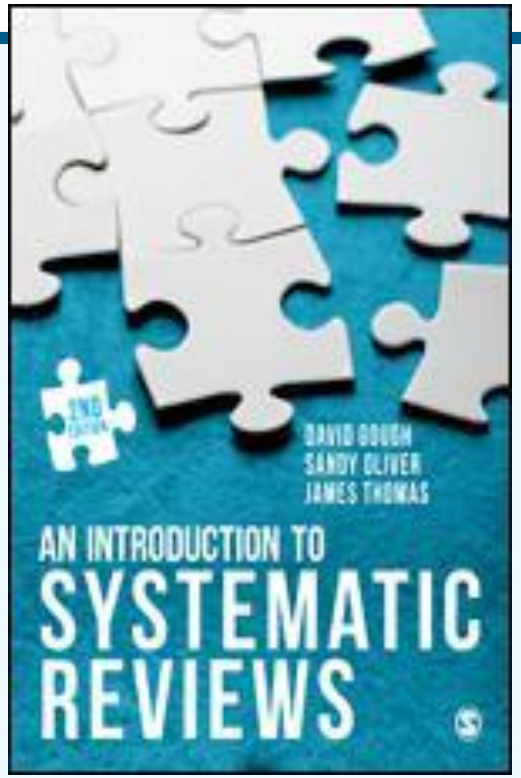
3) For both of the above consider (write down on a piece of paper)

i) Identify a real practical example that arose in your work as a teacher

ii) Consider what and how you might apply one or more ideas that you have learnt from this workshop to (i)

iii) Pass paper to your partner – who then comment/ make suggestions and pass back to you.

Systematic Review Methods +
The Science of Using Science



https://www.sagepub.com/en-us/nam/an-introduction-to-systematic-reviews/book245742%20

http://eppi.ioe.ac.uk/cms/Default.aspx?tabid=3504

Some useful websites

Best Evidence Medical and Health Professional Education (BEME)

http://www.bemecollaboration.org/

Joanna Briggs Institute

http://www.joannabriggslibrary.org/jbilibrary/

EPPI-Centre, Institute of Education, London

http://eppi.ioe.ac.uk/

Cochrane Effective Practice and Organisation of Care group

http://epoc.cochrane.org/